I claim:

1. In a local area network, having a plurality of stations, and wherein data flow moves over the network in superframes, a scheduler for providing quality of service, comprising:

a mechanism for governing channel resources in the local area network, including a transmit specification controller for granting a transmit specification to a data flow from one station on the network to another station on the network; and

a TXOP mechanism for terminating transmits opportunities for stations which have successfully completed data transmission, thereby changing the length of a superframe.

2. The scheduler of claim 1 which includes a buffer size predictor for predicting the required buffer size as a function of the transmit specification.

3. The scheduler of claim 2 wherein the buffer size predictor minimizes buffer size.

4. The scheduler of claim 1 wherein said TXOP mechanism, during successive superframes, expands and contracts the TXOP durations of the stations in the network as a function of completed polling interval relative to the requested polling interval.

5. The scheduler of claim 4 wherein the TXOP duration is T_{TXOP}, and where $T_{TXOP} =$

$$\mathrm{Min}\left(\mathrm{Max}\left(\left(\frac{\text{Actual Polling Interval}}{\text{Nominal Polling Interval}}\right)*T'_{TXOP,\,Avg},\ T_{TXOP,\,Min.\ Data\ Rate}\right),\ T_{TXOP,\,Max\ Data\ Rate}\right)$$

where $T_{TXOP,\,Avg}$ corresponds to the TXOP duration required to support the mean data rate at the agreed upon transmission rate, and $T_{TXOP,\,Min.\ Data\ Rate}$ and $T_{TXOP,\,Max\ Data\ Rate}$ corresponds to the minimum data rate and maximum data rates, respectively.

6. A method of providing quality of service in a local area network, having a plurality of stations, and wherein data flow moves over the network in superframes, comprising:

governing channel resources in the local area network, including controlling transmit specifications for granting a transmit specification to a data flow from one station on the network to another station on the network; and

terminating transmits opportunities with a TXOP mechanism for stations which have successfully completed data transmission, thereby changing the length of a TXOP.

7. The method of claim 6 which includes predicting the required buffer size as a function of the transmit specification and channel conditions.

8. The method of claim 7 which further includes minimizing the buffer size.

9. The method of claim 6 which includes predicting the required buffer size as a function of the expected required throughput.

10. The method of claim 9 which further includes minimizing the buffer size.

11. The method of claim 6 which further includes setting the length of a TXOP having a variable size with a TXOP mechanism, which, during successive superframes, expands and contracts the TXOP durations of the stations in the network as a function of completed polling interval relative to the requested polling interval.

12. The method of claim 11 wherein said setting the length of the TXOP includes setting the TXOP duration as T_{TXOP}, and where T_{TXOP} =

$$\mathrm{Min}\left(\mathrm{Max}\left(\left(\frac{\text{Actual Polling Interval}}{\text{Nominal Polling Interval}}\right)*T'_{TXOP,\,Avg},\ T_{TXOP,\,Min.\ Data\ Rate}\right),\ T_{TXOP,\,Max\ Data\ Rate}\right)$$

where $T_{TXOP,\,Avg}$ corresponds to the TXOP duration required to support the mean data rate at the agreed upon transmission rate, and $T_{TXOP,\,Min.\ Data\ Rate}$ and $T_{TXOP,\,Max\ Data\ Rate}$ corresponds to the minimum data rate and maximum data rates, respectively.